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UDC 636.22/.28.085.55

PRODUCTION OF VARIOUS FODDER MIXES FOR BEEF CATTLE

Moscow ZHIVOTNOVODSTVO in Russian No 2, 1980 pp 40-41

LEUSHIN, S. G., professor, doctor of agricultural sciences and PIVDVAROV, N. S., scientific collaborator, All-Union Scientific Research Institute of Beef Cattle Raising

[Abstract] Development of specialized sectors of beef cattle raising in grain producing regions has required maximal utilization of field by-products, and straw in particular. At the All-Union Scientific Research Institute of Beef Cattle Raising in Orenburgskaya Oblast, shops to house the feed reducer-mixer ISK-30 have been built and developed in Oblast enterprises. The apparatus, after structural modifications, is given to Oblast industry; it can be used in feed enterprises serving 3,000-5,000 head of cattle. It successfully reduces and mixes straw, hay, silage, watermelons and squashes. A distinctive feature of the apparatus is that the passage for fodder can be raised to provide access for repair and maintenance. Researchers had wanted the capability to form feed granules or briquets. A shop with this capability was built at the "Rossiya" kolkhoz in Ilekский Rayon. In summer, briquets were processed in press-briquetmaker OPK-2.0 from grass cuttings. In winter the shop produced briquets and granules with straw content 30-80%. The fodder was tested on 45 steers. One group received fodder of 17-19% straw, 55-57% silage, 6-7% grass flour, 1-1.5% chick-peas and 16-18% barley. Group three received silage and briquets of recipe I (50% straw, 15% grass flour, 15% wheat by-products, 15% barley and 5% chick-peas). Group two received silage and briquets of recipe II (70% straw, 15% grass flour, 10% barley, 5% chick-peas) for 62 days, and briquets of recipe I for 128 days, along with silage. Results showed that steers fed with recipe I and silage had 8.2% more body mass than a control group, and 3.0% more than steers fed corn silage and briquets of recipes II and then I. Figures 2.

[571-12,152]

UDC 636.085.3(571.1)

CONDITION OF FODDER-PRODUCING LANDS IN THE SWAMPY TAIGA ZONE OF THE WEST SIBERIAN NATURAL REGION

Leningrad RASTITEL'NYE RESURSY in Russian No 1, 1980 pp 3-14 manuscript received 18 May 79

SAVCHENKO, I. V., All-Union Scientific Research Institute of Fodder imeni V. R. Vil'yams, Lugovoye, Moscow Oblast

[Abstract] The area of swampy taiga West Siberian natural region comprises 176,000,000 hectares. It contains six natural divisions. Forest and shrubs occupy 86,500,000 ha (49%), swampland, 41,200,000 ha (23.3%) and agricultural lands, 11,400,000 ha (6.4%). The area of fodder-producing lands in the region comprises 6,800,000 ha, deer pasture--25,500,000 ha. The area of fodder-producing land can be broken down into flatland and dry valleys, which are largely used as pasture, occupying 3,703,000 ha (54% of the area of all haying and pasture areas), low lying marshy and sunken lands, which are used mainly for hay fields, 431,000 ha; tidal lands--2,288,000 ha- and swamp, 415,000 ha. Deer pasture in forest and shrub areas is 9,515,000 ha; lichen deer pasture, 15,992,000 ha. Considering the demand for animal production in this area, it will be necessary to increase the area of cultivated pasture. The annual yield of fodder is 5,917,400 to 10,160,000 tons dry mass, and from deer pastures, 1,465,000 tons. The meliorative work on hay fields has not been satisfactory, partly due to shrubs and hillocks, but the development of pasture lands for cattle has been successful. More than 27% of fodder-producing areas have acidic soils; in the south, saline and solentz soils are widespread. The primary goal in the Oblast for increased fodder production is to develop tidal meadows. Measures to allow quick drainage of flood waters are necessary. Mechanical removal of shrubs and trees is planned. Fertilizers and lime should be supplied. Figure 1 (a map); reference 1 (Russian). [572-12,152]

AUTOMATED SYSTEM OF ADMINISTRATION IN PEDIGREE BREEDING

Moscow ZHIVOTONOVOSTVO in Russian No 2, 1980 pp 19-20

PLUNGE, V. I., chief of agricultural computer center, Lithuanian Scientific Research Institute of Rural Electrification, candidate of economic sciences and RAMANAUSKENE, V. YU., Department Head

[Abstract] Efforts of the Lithuanian Scientific Research Institute of Rural Electrification and the Scientific Research Institute of Livestock Breeding, in association with breeding specialists, have brought about an automated administration system with a base of computers "Minsk-22" and "Minsk-32." The system has the characteristic feature of linear ties among all institutions with breeding operations in the republic. The tasks were to provide for accounting and operational analysis of milk production, adaptation of cows to machine milking, health and reproduction of the dairy herds; accounting and operational analysis of growth, development and meat qualities of young stock; formulation of expanded breeding records for administrative purposes; analysis of herd records; evaluation of dairy cattle for milk production by comparisons of 305 day and 90 day lactation periods; and evaluation of different sectors of the herds for various qualities. Data are collected and sent to the computer center monthly. The center then returns reports of the operational analysis of herd conditions and individual accounts of milk production. After each year, the system provides a summary of milk production for each cow; expanded accounts of breeding work, including appraisals of cows; and analyses of the herd genealogical structure. The automation has provided for decreased work in documentation, improved work of breeders, increased statistical abilities and improved planning ability and communications. Before the operation, 171,500 cows were appraised; with its introduction, 398,200 cows were appraised. As a result of the system, four new lines of black spotted Lithuanian stock were introduced. In 1978 for every 100 cows there were births of 31 heifers, each heifer having an average milk yield of 2981 kg milk with a 3.69% fat content, which was an increase of 1032 kg milk and .14% fat content over 1965. [571-12,152]

OFFICIAL COMMUNICATIONS [ON ANIMAL HUSBANDRY]

Moscow ZHIVOTONOVODSTVO in Russian No 2, 1980 p 11

No Author. Communications coordinated with the All-Union Central Trade Union Council and State Commission of Labor USSR; approved by a resolution of the colleagues of the Ministry of Agriculture USSR and presidium of the Central Committee, Trade Union of Agricultural Workers, 25 Dec 1979

[Abstract] This article concerns The All-Union Socialist Competition of Livestock Workers for Increase in Production and Preparation of Animal Products, Winter, 1979/80. Kolkhozes, sovkhoses, interindustry enterprises and other state agricultural enterprises and organizations which spent the winter working with livestock will be acknowledged as victors in the All-Union Socialist Competition of Livestock Workers for increase in production and preparation of animal products in winter, 1979/80. The winners will be those who achieved highest indicators in fulfillment of plans and socialist commitments in production and sale of meat, milk, eggs, wool and other products for the fourth quarter of 1979 and first half of 1980; and increase in production and purchase of animal products, conservation of the cattle and poultry population, effective use of feeds and increase of cultures in production. Materials for summing up the competition and proposals of awards will be distributed to kolkhozes and other organizations before 7 July 1980 by Ministries of Agriculture of the union republics, Ministry of Sovkhoses Ukrainian SSR, Council of Kolkhozes Moldavian SSR, and republic trade union committees in the Ministry of Agriculture USSR. Honorary certificates from the CC CPSU, Council of Ministers USSR, All-Union Central Trade Union Council and Central Committee, All-Union Lenin Young Communist League will be awarded. Distribution of money awards to individuals may be up to 70% of the total; the remainder is to be used for cultural and recreational measures.

[571-12,152]

PHARMACOLOGY

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PHARMACOLOGICAL EVALUATION OF ANDROSACE SEPTENTRIOLUS L.

Leningrad RASTITEL'NYYE RESURSY in Russian No 1, 1980 pp 129-134 manuscript received 22 Jan 79

PIROZHKOVA, N. M., KRAI'JOV, YE. A., KOVAYEV, V. B., VASIL'YEV, N. V. and GORSHKOVA, V. K., Tomsk Medical Institute; Tomsk Scientific Research Institute of Biology and Biophysics, Tomsk State University; All-Union Scientific Research Institute of Nature Conservation and Park Management of the USSR Ministry of Agriculture, Moscow

[Abstract] Androsace septentrionalis L. has received interest due to its distribution and medicinal qualities. Biological activity of extracts of quantities of saponins (3-3.2%) were examined in plants collected in June of 1975-76 in rayons of Gorniy Altay and southern Krasnoyarskiy Kray. The presence of two triterpene aglycones with R_f 0.58 and 0.89 in system 3 were noted; sugar components were identified with D-glucose, D-galactose, L-arabinose and L-rhamnose (R_f 0.21, 0.30, 0.34 and 0.70 in system 4 respectively). The triterpene glycosides had an inhibiting effect on an early culture of gonococcus Neisseria gonorrhoeae. The anticonvulsive activity of liquid extracts was tested in mice; for comparison, five Siberian species of Androsace were included in the experiment. Antispasmodic effects were evident with a dose of 0.05 ml/10g mass using A. septentrionalis in maximal electroshock testing. A weaker antispasmodic effect was achieved with A. bungeana. An extract of combined saponins from A. septentriolus L. exhibited a weak antispasmodic effect. References 34: 20 Russian, 1 Ukrainian, 13 Western. [572-12,152]

WILD ESSENTIAL-OIL PLANTS OF UZBEKISTAN, POTENTIALLY USEFUL FOR THE FOOD INDUSTRY

Leningrad RASTITEL'NIYE RESURSY in Russian No 1, 1980 pp 104-107 manuscript received 7 Dec 77

KHODZHIMATOV, K. KH., and RAMAZANOVA, N. KH., Institute of Botany, Uzbek SSR Academy of Sciences, Tashkent

[Abstract] Since 1967, the natural flora of the republic has been examined in the Institute of Botany, Uzbek SSR Academy of Sciences to locate essential-oil and spice aromatic plants which would be useful in food industries. Plants were tested at the Tashkent experimental plot. Notable plants from the flora of Uzbekistan were 560 species of essential-oil plants from 233 genera and 52 families. The most promising for use were the following species: balm Melissa officinalis L., the oil of which is useful for non-alcoholic drinks, Origanum tytthanthum Gontsch, also desirable for non-alcoholic drinks, Salvia sclarea L. and S. bucharica (the former could be used in the liquor-vodka and confectionery industries). Ziziphora pedicellata Pazij et Vved. was used in a new non-alcoholic drink "Tashkentskiy." Ziziphora brevicalyx Juz. and Ziziphora pamiralaica can be used in ways similar to Ziziphora pedicellata. Bunium persicum was recommended for use in sausage preparation, meat and fish canning, fish pickling and in recipes of bitter infusions like balsam. Muretia fragrantissima and M. transitoria, used locally as a condiment, are also of interest. Hypericum perforatum L. has been used in the liquor-vodka industry for vermouth and nastoyka. It is recommended for new tonic drinks. The test plants of these species yielded a better harvest than did those in the wild: Melissa officinalis L., Origanum tytthanthum, Ziziphora pedicellata and Bunium persicum. These four are particularly recommended for cultivation. References 11 (Russian). [572-12,152]

TISSUE CULTURE OF GINSENG. COMMUNICATION I. CHEMICAL COMPOSITION OF THE BIOMASS OF GINSENG CULTURE

Leningrad RASTITEL'NYYE RESURSY in Russian No 1, 1980 pp 123-129 manuscript received 11 Jul 79

VYSOTSKAYA, R. I., and SLEPYAN, L. I., Leningrad Chemico-Pharmaceutical Institute

[Abstract] Chemical, histochemical and microscopic analyses of Penax ginseng C. A. Mey. were undertaken at the Leningrad Institute. A general chemical analysis of the root itself was compared to that of the biomass. A preliminary phytochemical analysis of the tissue culture biomass indicated the presence of triterpene saponins. Other secondary products of metabolism were not demonstrated. Water extracts of the biomass gave a negative result in hemolytic testing. Content of total glycoside fraction was 5.92 ± 0.87 in biomass of tissue culture, and no less than the root. Using the ultramicro thin-layer chromatography, it was shown that the biomass of tissue culture contained glycosides with values analogous to panaxosides of the ginseng root. Results of the general chemical analysis showed that ash content in biomass was more than twice the amount for the roots. The carbohydrate fraction of biomass contained sucrose and fructose. Qualitative and microchemical analysis indicated that a characteristic reaction of the biomass was with a saturated solution of $SbCl_3$ in glacial acetic acid; histochemically the typical rosy-lilac color from this reaction was localized in the cell cytoplasm, just as is the case for the intact. Microscopic examination of biomass powder also showed similarities to root powder.
[572-12,152]

UDC 636.22/.28:612.64.02

TECHNIQUE FOR NONSURGICAL TRANSPLANTATION OF LARGE HORNED CATTLE EMBRYOS

Moscow ZHIVOTNOVODSTVO in Russian No 2, 1980 pp 50-54

PROKOF'YEV, M. I., candidate of agricultural sciences, BELEVICH, V. P., RYABYKH, V. P., BAKHITOV, K. I., CHERNYKH, V. YA., GORYACHEV, V. S., MALENKO, G. P., NIKITINA, V. N., candidates of biological sciences, DRONIN, A. P., Junior Scientific Collaborator and KORETSKAYA, L. I., Senior Laboratory Worker, All-Union Scientific Research Institute of Physiology, Biochemistry and Nutrition of Agricultural Animals, Borovsk

[Abstract] A technique for nonsurgical transplantation of embryos was developed by the authors at the experiment station "Kamenka" of Moskovskaya Oblast. It includes superovulation in donor cows; extraction of the embryo; manipulations with embryos from outside the body; evaluation of their quality; and transplantation. Two superovulation induction methods are described: a one time dose of synthetic fatty acid 2500-3000 iu on the 16th day of the sexual cycle, or FSH, 40-50 mg twice daily for five days, or the same substances introduced on the 10th day in the cycle with injections of prostaglandin F_{2a}. In the embryo extraction, a single canal catheter is used, consisting of a hard tube of nonrusting steel and a flexible tip of polyethylene or polyvinyl chloride. The catheter is inserted through the cervix with the aid of a stilet. A physiological medium (20-40 ml solution) is injected which washes out the embryonic cells, mucus and epithelium. The fluid flows out through the catheter into a collector situated radially; the flushing action of additional quantities of fluid is repeated 5-8 times with 20-30 second intervals. The cells are then located under MBS-2 or MBS-9 microscopes and are evaluated. Embryos 10 days old had a better survival rate than those 8 days old. The transplantation is accomplished by insertion of a catheter into the uterine horn, 5-7 cm from the body. Thus the procedure approached artificial insemination in simplicity; in this instance, more than 200 embryos of large horned cattle were transplanted. Results showed a survival rate of up to 50%. Figures 5.

[571-12,152]

ROLE AND TASKS OF SCIENCE

Moscow ZHIVOTNOVODSTVO in Russian No 2, 1980 pp 15-17

VAGONIS, Z. I., professor, director, Lithuanian Scientific Research Institute of Livestock Breeding

[Abstract] Increased demands for animal production have brought urgent requirements on scientists and producers for intensification of their efforts. Creation of a strong fodder base, improved breeding, systematized work and increased application of veterinary research are necessary. Methodological supervision of animal breeding has been accomplished in the republic by the author's institute, which works closely with other scientific institutions. A so-called "baysogal'skaya" [probably derived from the Baysogal'skiy Experimental Farm] technology of freezing and handling bull sire sperm has been successfully utilized, increasing amounts available. The quality of sperm has also been improved. To verify parentage records, researchers organized an analysis of blood groups. In 1972, a republic self-supporting laboratory was created to research animal blood groups; it incorporated immunogenetic and genetic methods in breeding operations. The laboratory has provided more information about populations and also results of genetic improvements. In order to avoid inheritance of harmful genes, cytogenetic verification of animals used for artificial insemination has been introduced. To evaluate swine breeding, selection indexes are used. Researchers have also designed indexes for cattle. Influence of environment is also considered in the genetic evaluation. Adaptation to mechanized milking and commercial enterprises is sought in breeding. Hopes are placed on methods of transplanting zygotes, bringing about superovulation, and preservation of zygotes and oocytes. A method of selection in five closed populations is being used with Lithuanian white swine. Four different selection programs are being utilized. The scientific base of breeding plays a large role in developing useful animals. Particular attention is paid to improved cattle breeding in large enterprises with the goal of acquiring animals with strong constitutions. [571-12,152]

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